Jesus Mancilla

Applied Scientist & Quantitative UX Researcher
LLMs, Evaluation, RAG, Survey Analytics, AI Systems Architecture
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Professional Summary

Innovative professional at the intersection of **Quantitative UX Research** and **Applied Machine Learning/LLMs**. Proven track record designing hybrid ML classifiers, survey analysis systems, and enterprise AI architectures (vector databases, retrieval pipelines, RAG, autonomous agents). Blend of academic research (peer-reviewed publications, HCI/AI focus) and industry impact (Meta, Roku, Walmart, Argomai). Skilled at translating business goals into scalable AI/UX systems with measurable outcomes.

Technical Stack & Domains

LLMs/ML: Transformers, RAG, Evaluation, Prompting, Feature Eng., Scikit-learn, PyTorch, TensorFlow
NLP: Text classification, semantic retrieval, vector databases, embeddings, clustering
Data/Apps: Python, SQL, FastAPI, LangChain/LangGraph, React/Next.js, JS/TS
Systems: Enterprise architecture, service boundaries, domain models, NFRs, workflow optimization
Quant UXR: Survey analytics at scale, behavioral log analysis, KPI dev, dashboards, experimentation
Cloud/Tooling: CI/CD, observability, automation pipelines; Git, Docker
Other: Data viz, statistical inference; Fluent in English & Spanish

Work Experience

Argomai Houston, TX (Remote)
Co-founder & AI Solutions Lead Jan 2025 – Present

- Owned enterprise AI architecture (service boundaries, domain models, data governance, NFRs) for customer-facing products; aligned GenAI/ML initiatives with exec roadmaps.
- Engineered vector databases, retrieval pipelines, a reusable AI component library (embeddings, prompt templates, orchestration SDK), and autonomous agents.
- **Cut multipage document classification from ~90 min to <5 min** via automation & retrieval improvements; **reduced PM reporting from 6 hrs/wk to <1 hr** with streamlined reporting.
- *User impact:* faster document turnaround and searchable knowledge improved stakeholder responsiveness and lowered operational cycle time.

Meta Houston, TX (Remote)
Senior Quantitative UX Researcher Jan 2024 – Jan 2025

- Built a **hybrid ML classifier** for open-ended responses (clustering, few-shot, human-in-the-loop, multi-agent reasoning) to triage/analyze surveys.
- **Reduced analysis time from ~30 hrs to <8 hrs**; doubled survey output by productizing Python analytics tools for researchers across projects.
- Merged behavioral editor logs with in-app surveys to produce comprehensive, action-oriented insights.
- *User impact:* accelerated feedback loops for creators/researchers; insights influenced roadmap decisions and feature prioritization.

Roku San Jose, CA
Senior User Experience Researcher Jan 2021 – Nov 2023

- Developed the **Modular Survey Analysis System**: end-to-end ML report generator for survey data (stats + NLP categorization of open-ended responses).
- Led quant/qual research on physical devices; **behavioral log analysis across 70M+ devices** to drive product decisions.
- Created an **AI-powered indexed database** of UX & CI research; **cut weekly report generation from ~4 hrs to <5 min** via ML automation and GenAI summaries.
- *User impact:* org-wide self-serve insights; faster executive reporting; improved searchability of prior research.

Walmart Global Tech Sunnyvale, CA
Senior User Experience Researcher Aug 2019 – Nov 2020

- Established KPIs and led analytics for Sam's Club mobile app; integrated user interaction data with business metrics to inform UX strategy.
- *User impact:* decisions tied to measurable experience improvements; clearer alignment between usage patterns and product bets.

Scrapworks Inc. Palo Alto, CA
Data Scientist Sep 2017 – Aug 2019

- **60% reduction** in forecasting error using deep learning for commodities futures; built dashboards over 20 years of sales data (**+30% sales growth**).
- Initiated NLP merchandise classification (supported a patent filing); productionized data ingestion/cleaning across multiple sources.

Additional Experience

Suggestic Mexico City, Mexico
User Experience Researcher Dec 2016 - Sep 2017
- Executed data-driven testing and analysis for new app features, ensuring optimal integration and alignment with user needs and business objectives.
- Designed and developed advanced app prototypes, leveraging analytics to inform rapid iterations and feature enhancements.

Stanford University Stanford, CA
User Experience Researcher May 2016 - Nov 2016
- Conducted pioneering research on stress detection using machine learning algorithms, collecting and analyzing over 150 hours of car, biometric, and video data.
- Contributed to the development of algorithms with 90% accuracy in stress detection.
- Authored and contributed to research papers on automotive UI and pedestrian interactions, enhancing the academic discourse in UX design.

ITAM Mexico City, Mexico
User Experience Researcher Aug 2014 - May 2016
- Created custom data visualizations and analyzed psychophysiological signals, identifying user behavior patterns using machine learning techniques.
- Crafted personalized user experience solutions for interactive technologies, spanning wearable, mobile, and web platforms.

Selected Projects (UXR ∩ Applied ML)

Research Librarian (AI Index for UX/CI) — Semantic retrieval over an indexed research corpus using embeddings, vector stores, and custom ranking; improved findability and reuse of insights across the org.

Modular Survey Analysis System — End-to-end pipeline that auto-generates survey reports (stats + NLP open-ended categorization + clustering); enabled at-scale survey analytics with minimal analyst time.

Customer Support Bot (Ref Architecture) — LLM-augmented support with RAG, evaluation/observability, and safety rails; blueprint for productionizing conversational flows.

Education

Instituto Tecnológico Autónomo de México (ITAM)
M.S. in Computer Science (HCI/AI Focus) 2014 – 2016

Universidad de Colima
B.A. in Psychology 2009 – 2013

Selected Publications

Ramos-Rivera, R. E., Santana Mancilla, P. C., Garcia-Mancilla, J., & Gaytán-Lugo, L. S. (2025). Language models in education: Generative AI to optimize teacher performance analysis. InnovAcademica, 1(2), 74–85.

Ramos-Rivera, R. E., Garcia-Mancilla, J., Cárdenas-Villa, G. E., & Santana-Mancilla, P. C. (2024). Towards Improving Teacher Performance Assessment through Human-Centered AI-Powered Survey Analysis: An Approach Using Large Language Models (LLM). Avances en Interacción Humano-Computadora, 9(1), 261-264.

Baltodano, Sonia, Jesus Garcia-Mancilla, and Wendy Ju. "Eliciting Driver Stress Using Naturalistic Driving Scenarios on Real Roads." In Proceedings of the 10th International Conference on Automotive User Interfaces and Interactive Vehicular Applications, pp. 298-309. ACM, 2018.

Currano, Rebecca, So Yeon Park, Lawrence Domingo, Jesus Garcia-Mancilla, Pedro C. Santana-Mancilla, Victor M. Gonzalez, and Wendy Ju. "¡Vamos!: Observations of Pedestrian Interactions with Driverless Cars in Mexico." In Proceedings of the 10th International Conference on Automotive User Interfaces and Interactive Vehicular Applications, pp. 210-220. ACM, 2018.

J. Garcia-Mancilla, J. E. Ramirez-Marquez, C. Lipizzi, G. T. Vesonder, and V. M. Gonzalez, "Characterizing negative sentiments in at-risk populations via crowd computing: a computational social science approach," International Journal of Data Science and Analytics, Jun. 2018.

For full list, see: jgmancilla.com/research-papers